

Geomorphic effects of floods– integrating ancient, modern and experimental data

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Despite the appreciably high impact of high-magnitude river floods on the society, their role in landscape evolution and in the formation of the sedimentary record is less clear. This efficacy of large floods on landscape formation has long fascinated geomorphologists and geologists, generating some of the more impassioned debates. Most common assumption is that high-frequency moderate (ordinary) events do most geomorphic work and build the sedimentary record, and that high-magnitude event effects are reworked during river recovery. There is however a large body of evidence from modern and ancient rivers that documents significant preservation of high-magnitude flood effects. This presentation explores this seeming contradiction, and discusses the conditions at which moderate vs high-magnitude river floods are most important in landscape evolution. We integrate modern, ancient and experimental data, and consider the implications for flood hazard prediction.